

Applicants: Stewart Shuman, et al.
Serial No.: 10/666,486
Filed: September 19, 2003
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REMARKS

Claims 45 and 79-100 were pending in the subject application. By this Amendment, applicants have hereinabove amended claims 45, 79, 90, 92, 93, 95 and 100. In addition, applicants have herein cancelled previous claims 96 and 97 without prejudice or disclaimer of applicants' right to pursue the subject matter of these claims in the future.

Support for amended claims 45 and 79 may be found in the specification as originally filed at, *inter alia*, page 6, line 14 to page 7, line 4; page 7, line 13 to page 8, line 2; page 16, line 15 to line 16; page 28, line 13 to line 17; page 29, line 4 to line 10 and Figure 11.

Support for amended claim 90 may be found in the specification as originally filed at, *inter alia*, page 26, line 2 to line 3.

Support for amended claim 95 may be found in the specification as originally filed at, *inter alia*, page 6, line 14 to page 7, line 4; page 7, line 13 to page 8, line 2; page 16, line 6 to line 18 and Figure 11.

Claims 92, 93 and 100 were amended for clarity.

Applicants maintain that the amendments to the claims raise no issue of new matter. Accordingly, applicants respectfully request entry of this Amendment.

Rejection under 37 U.S.C. §112, second paragraph

In the May 5, 2008 Office Action, the Examiner rejected claim 79 under 37 U.S.C. §112, second paragraph, as allegedly

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indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner asserted that claim 79 is indefinite for reciting that the tagged sequence "comprises the sequence shown in Figure 11," and stated that the claim is interpreted to broadly encompass any sequence illustrated in Figure 11.

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. However, in order to expedite prosecution, and without conceding to the correctness of the Examiner's position, applicants have hereinabove amended claims 79 and 95 to recite that the DNA tag comprises the sequences set forth in SEQ ID NOS. 30 and 31.

Accordingly, applicants maintain that the claims, as amended, are definite and respectfully request that this ground of rejection be reconsidered and withdrawn

Rejection under 37 U.S.C. §102(b)

In the May 5, 2008 Office Action, the Examiner rejected claims 45, 80, 85-89, 91 and 100 under 37 U.S.C. §102(b) as allegedly anticipated by Kato et al. (Gene, 1994, 150, 243-250).

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. However, in order to expedite prosecution, and without conceding to the correctness of the Examiner's position, applicants have hereinabove amended claim 45 to recite, "...attaching a double-stranded DNA tag sequence to the 5' end of the isolated mRNA..." Support for the amendment

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may be found in the specification, *inter alia*, on page 28, line 13 to line 17. Kato et al. does not teach such.

Although the Examiner stated that Kato et al. "teaches a method of obtaining full-length gene sequences comprising: isolating full length mRNA" and "attaching a DNA tag sequence to the isolated mRNA," applicants note that Kato et al. does not in fact teach attaching a DNA tag sequence to the isolated mRNA. Rather, Kato et al. discloses attaching a single-stranded chimeric DNA-RNA linker, as stated on page 244, right hand column, "The decapped mRNA and 3 nmol of a chimeric DNA-RNA oligonucleotide linker (5'-dGdGdGdGdAdAdTdTdCdGdA-GGA-3')...were ligated..." The purpose of the DNA-RNA linker used by Kato et al. was to generate a 5' phosphate group to the decapped mRNA for downstream ligation into the pKA1 cloning vector (See page 245, first column third paragraph; and page 248, second column, third paragraph). In contrast, the DNA tag recited in claim 45 as amended is double-stranded and is not taught by Kato et al.

Applicants maintain that nowhere does the cited reference teach all the elements of applicants' invention as recited in amended claim 45. Thus, claim 45 as amended is novel over Kato et al. Pending claims 85-89, 91 and 100 depend from and include the limitations of claim 45, and are also therefore novel over Kato et al.

Accordingly, applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Rejection under 35 U.S.C. §103(a)

Kato et al. and Carninci et al.

In the May 5, 2008 Office Action, the Examiner rejected claims 45, 81-84, 87, 88, and 90 under 35 U.S.C. §103(a) as unpatentable over Kato et al. (Gene, 1994, 150, 243-250) in view of Carninci et al. (Genomics, 1996, 37, 327-336).

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. Amended claim 45, from which the remaining rejected claims depend, recites attaching a double-stranded DNA tag sequence to the isolated mRNA. Applicants maintain that Kato et al. does not teach or suggest a double-stranded DNA tag sequence as recited in amended claim 45, and Carninci et al. in combination with Kato et al. does not overcome this deficiency. Pending claims 81-84, 87, 88 and 90 depend from and include all the limitations of claim 45, and are also therefore patentable over Kato et al. in view of Carninci et al.

Furthermore, applicants have amended dependent claim 90 so as to recite, "wherein the chemical treatment is periodate oxidation and beta elimination." Applicants note that Carinci et al. in combination with Kato et al. fail to teach chemical decapping of the mRNA. Rather Carinici et al. use the periodate oxidation treatment to directly label the diol group of the cap structure with biotin, "a reaction was developed to label the diol group of the cap structure with biotin... In this method the diol residue is oxidized by NaIO₄," (Figure 1B, page 334, left hand column, paragraph 3). As amended claim 90 recites chemical treatment is periodate oxidation and

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beta elimination which is not obvious over the combination of cited prior art.

Accordingly, applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Kato et al. and Shuman

In the May 5, 2008 Office Action, the Examiner rejected claims 45 and 92-97 under 35 U.S.C. 103(a) as unpatentable over Kato et al. (Gene, 1994, 150, 243-250) in view of Shuman (J. Biol. Chem. 1994, 269, 32678-32684).

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. However, in order to expedite prosecution, and without conceding the correctness of the Examiner's position, applicants have hereinabove cancelled previous claims 96-97. Amended claim 45, from which the remaining rejected claims depend, recites attaching a double-stranded DNA tag sequence to the isolated mRNA. Applicants maintain that Kato et al. does not teach or suggest a double-stranded DNA tag sequence as recited by amended claim 45. It would not have been obvious to generate the claimed double-stranded tag sequence with a recognition site for vaccinia DNA topoisomerase in view of Shuman. Shuman in combination with Kato et al. does not remedy the deficiencies of Kato et al. and therefore the combination does not make the pending claims obvious. Since pending claims 92-95 depend from and include all the limitations of claim 45, they are also therefore patentable over Kato et al. and Shuman et al.

Accordingly, applicants respectfully request that the Examiner reconsider and withdraw this rejection.

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Kato et al., Shuman and Chenchick et al.

In the May 5, 2008 Office Action, the Examiner rejected claim 79 under 35 U.S.C. 103(a) as unpatentable over Kato et al. (Gene, 1994, 150, 243-250) in view of Shuman (J. Biol. Chem. 1994, 269, 32678-32684) and further in view of Chenchick et al. (Biotechniques, 1996, 21, 526-534).

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. As amended claim 79 recites attaching a double-stranded DNA tag sequence to the isolated mRNA. Applicants maintain that Kato et al. does not teach or suggest a double-stranded DNA tag sequence as recited in amended claim 79. Moreover, applicants maintain that nowhere does the cited combination of references teach amplification of the cDNA with primers using the anticoding sequence of the claimed double-stranded DNA tag containing a recognition site for vaccinia DNA topoisomerase. As such, it would not have been obvious to anticipate the claimed alternative to the conventional library screening method for obtaining full-length cDNA clones. Therefore, neither Shuman nor Chenchick et al. remedy the deficiencies of Kato et al. and the combination does not make pending claim 79 obvious.

Accordingly, applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Obviousness-Type Double Patenting

In the May 05, 2008 Office Action, the Examiner rejected claims 45, 79-100 on the grounds of nonstatutory obviousness-type double patenting as unpatentable over claims 1-17 of U.S.

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Patent No. 6,653,106 in view of Carninci et al. (Genomics, 1996, 37 327-336).

Applicants' Reply

In response, applicants respectfully traverse the Examiner's rejection. However, if after entry of the current amendment this obviousness-type double patenting rejection is the only rejection remaining in the subject application, applicants will consider filling a terminal disclaimer M.P.E.P. § 804(I)(B).

If a telephone interview would be of assistance in advancing prosecution of the subject application, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

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No fee, other than the enclosed \$490.00 fee for a two-month extension of time, is deemed necessary in connection with the filing of this Amendment. However, if any additional fee is required, authorization is hereby given to charge the amount of such additional fee to Deposit Account No. 03-3125.

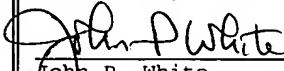
Respectfully submitted,



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